

What Is Claimed Is:

1. A method for exchanging data in messages between at least two stations connected via a bus system, the messages containing the data being transmitted by the stations over the bus system and the messages being controlled over time by a first station in such a manner that the first station repeatedly transmits a reference message containing time information of the first station over the bus system at at least one specifiable time interval, the time interval being subdivided as a basic cycle into time windows of specifiable length and the messages being transmitted in the time windows, wherein, when data is exchanged, a pause period of variable duration is provided at the end of at least one basic cycle, by which a time change of the beginning of the basic cycle is corrected by adaptation of the duration of the pause period.
2. The method as recited in Claim 1, wherein the time change in the form of a delay of the beginning of the basic cycle is corrected by shortening the duration of at least one pause period.
3. The method as recited in Claim 1, wherein at least two bus systems are synchronized with one another and the time change of the beginning of the basic cycle of a first bus system is corrected by adaptation of the duration of the pause period of a second bus system.

4. The method as recited in Claim 1,  
wherein a pause period is provided at the end of  
every basic cycle.
5. The method as recited in Claim 1,  
wherein a pause period is provided at the end of  
every  $2^n$ th basic cycle, where  $n \in \mathbb{N}$ , that is, n  
corresponds to a natural number.
6. The method as recited in Claim 1,  
wherein a pause period is provided at the end of  
every  $2^n+1$ th basic cycle, where  $n \in \mathbb{N}$ , that is, n  
corresponds to a natural number.
7. The method as recited in Claim 1,  
wherein, when data is exchanged, a pause period of  
variable duration is provided at the end of each of  
at least two basic cycles, by which a time change of  
the beginning of at least one basic cycle is  
corrected by adaptation of the duration of the at  
least two pause periods.
8. The method as recited in Claim 1,  
wherein, for correction of the time change, a  
correction value is determined which is found from a  
local time of a station and a cycle time.
9. The method as recited in Claim 8,  
wherein the correction value is determined from a  
first difference between two local times of a  
station in two successive basic cycles.

10. The method as recited in Claim 8,  
wherein the correction value is determined from a  
second difference between two cycle times of two  
successive basic cycles.
11. The method as recited in Claims 8 and 10,  
wherein the correction value is determined from a  
comparison value formed by the sum of the time  
interval of the basic cycle and the second  
difference.
12. The method as recited in Claims 9 and 11,  
wherein the correction value corresponds to the  
difference between the first difference and the  
comparison value.
13. The method as recited in Claim 8,  
wherein at least two pause periods are provided in  
the case of at least two basic cycles for exchanging  
data and the correction value is distributed over  
the at least two pause periods in a specifiable  
manner.
14. The method as recited in Claim 13,  
wherein the correction value is evenly distributed  
over the at least two pause periods.
15. A device for exchanging data in messages between at  
least two stations connected by a bus system, first  
means being included which transmit the messages  
containing the data over the bus system, having a  
first station which controls the messages over time  
in such a manner that it repeatedly transmits a  
reference message containing time information of the

first station over the bus system at at least one specifiable time interval, and having second means which subdivide the time interval as a basic cycle into time windows of specifiable length, the messages being transmitted in the time windows, wherein third means are provided which, using a pause period of variable duration provided at the end of at least one basic cycle when data is exchanged, correct a time change of the beginning of the basic cycle by adaptation of the duration of the pause period.

16. A system having at least two stations for exchanging data in messages between the at least two stations, having a bus system which connects the two stations, first means being included which transmit the messages containing the data over the bus system, having a first station which controls the messages over time in such a manner that it repeatedly transmits a reference message containing time information of the first station over the bus system at at least one specifiable time interval, and having second means which subdivide the time interval as a basic cycle into time windows of specifiable length, the messages being transmitted in the time windows, wherein third means are provided which, using a pause period of variable duration provided at the end of at least one basic cycle when data is exchanged, correct a time change of the beginning of the basic cycle by adaptation of the duration of the pause period.